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## DETERMINATES OF PARTICIPATION IN MICROFINANCE INSTITUTION: THE CASE OF ZIWAY DUGDA AND MUNESA DISTRICTS IN ARSI ZONE OROMIA REGIONAL STATE OF ETHIOPIA

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### ABSTRACT

*The objective of the study was to analyze factors that influence participation of formal microfinance institution of Farm households in Ziway Dugda and Munesa district. Data was analyzed via both qualitative and quantitative techniques. In addition, a binary logit model was used to investigate determinant factors that affect smallholder farmer's participation in formal credit. The result showed that the proportion of participants and non-participants in any credit for production and consumption purposes during the last five years was equal (50%) for both woredas. 86.75% of the total households were male out of which 50.1% participated in credit and the rest 13.25% were female from which 49.1% participated in credit for production and consumption purposes. The result of binary logistic regression model revealed that the variables age of household, educational status, total family size, and soil fertility were influence the participation of small holder farmers in microfinance institution at the 5% level of significance. Therefore, it is recommended that participation in microfinance institution should recognize the socio-economic, situational and demographic factors to enhance better participation in microfinance institution and thereby increasing rates and their farm productivity and household income.*

### KEYWORDS

participation, microfinance institution(MFI), logit model.

### BACKGROUND AND JUSTIFICATION

Promoting efficient, sustainable and widely accessible rural financial systems remains a major development challenge in most African countries (Onumah, 2003). With about 73% of Africa's population living in rural areas, and the high incidence of rural poverty, improved rural finance is seen as crucial in achieving pro-poor growth and poverty reduction goals. However, the development of rural financial systems is hampered by the high cost of delivering financial services to small, widely dispersed customers; as well as a difficult financial terrain characterized by high and covariant risks, missing markets for risk management instruments and lack of suitable collateral. The escalating food insecurity in Africa is other aspects that come to the fore in connection with the improvement of rural financial services in Africa. A particularly serious problem is that those in real need will have inadequate purchase power to acquire food even if the market succeeds in stimulating production. In the absence of employment opportunities which provide purchase power, the only solution for food deficit families is to produce their own food. These families are exactly those who are the first to be ignored by the financial market since they possess few resources, have no collateral, and involve high risks and high transaction costs. The numbers of these types of families are plenty in sub-Saharan Africa who will require assistance, including financial services, which are not determined by the market to secure self-sufficiency in food production (Shimelles T. and K.M. Zahidul I. 2009).

In countries like Ethiopia where agriculture is the mainstay of the majority of the population, the financial resource is a very important factor for economic development. However, in Ethiopia, among other things, lack of finance is one of the fundamental problems impeding production, productivity and income of the rural and urban households (Gebrehiwot, 2006).

The Ethiopian economy is supported by its agricultural sector, which is also a fundamental instrument for poverty alleviation, food security, and economic growth. However, the sector continues to be undermined by land degradation—depletion of soil organic matter, soil erosion, and lack of adequate plant nutrient supply (Grepperud 1996; Pender et al. 2006). There is, unfortunately, plenty of evidence that these problems are getting worse in many parts of the country, particularly in the highlands (Pender et al. 2001). Furthermore, climate change is anticipated to accelerate the land degradation in Ethiopia. As a cumulative effect of land degradation, increasing population pressure, and low agricultural productivity, Ethiopia has become increasingly dependent on food aid. In most parts of the densely populated highlands, cereal yields average less than 1 metric ton per hectare (Pender and Gebremedhin 2007). Such low agricultural productivity, compounded by recurrent famine, contributes to extreme poverty and food insecurity.

The rural credit market has also been subject to extensive state intervention. To stimulate the uptake of agricultural technology packages, all regional governments in Ethiopia initiated a 100 percent credit guarantee scheme in 1994. For instance, under this system, about 90 percent of fertilizer is delivered on credit at below-market interest rates. In order to finance the technology packages, credit is extended to farmers by the Commercial Bank of Ethiopia (a state-owned bank) through cooperatives, local government offices, and more recently microfinance institutions. Because farmers cannot borrow from banks due to collateral security problems, agricultural credit is guaranteed by the regional governments (Kassa 2003; Spielman et al. 2010, forthcoming).

Family size was found to have a positive and significant impact on the adoption decision of improved agricultural technology have reported by Birhanu, (1993); Asfaw *et al.*, (1997) and Tesfaye, (2004) in its attempt to reduce poverty and ensure food security, the government of Ethiopia designed several development policies, strategies, and programs. Since 1992 the government has taken major economic as well as financial sector reforms (2020 Vision Network for East Africa, 2000 and Alemayehu et al., 2006). This was made to provide adequate financial services to smallholder farmers and the poor in general.

Until 1988 Development Bank of Ethiopia (DBE) was the main source of agricultural input credit and later, Commercial Bank of Ethiopia (CBE) also involved in the same (Worku, 1999). The banks delivered credit to the farmers through cooperatives and local government offices so as to purchase agricultural inputs. However, this approach was not effective due to default cases.

Due to the above problem, the government of Ethiopia favored the establishment of cooperatives and promotion of Microfinance Institutions (MFIs) (Tesfaye, 2005b). The overall aim of financial service provided by both MFIs and saving and credit cooperatives (SACCOs) are to contribute to successful poverty alleviation program of the country.

Microfinance is defined as the delivery of small loan, savings, insurance and other financial services to the poor so that they can generate income opportunities, build assets base, stabilize consumption and protect themselves against risk (Hammill, 2008).

The term 'microfinance' means providing very poor families with very small loans (microcredit) to help them engage in productive activities or develops their tiny businesses (The Microfinance Gateway, 2008). Microfinance, according to Otero (1999) is "the provision of financial services to low-income poor and very poor self-employed people". These financial services according to Ledgerwood (1999) generally include savings and credit but can also include other financial services such as insurance and payment services. Microfinance as "the attempt to improve access to small deposits and small loans for poor households neglected by banks." Therefore, microfinance involves the provision of financial services such as savings, loans, and insurance to poor people, living in both urban and rural settings, who are unable to obtain such services from the formal financial sector. These individuals lack collateral, steady employment, and a verifiable credit history and therefore cannot meet even the least minimum qualifications to gain access to traditional credit.

Microfinance informal shape started out from Bangladesh in 1970's in a limited scale by Professor Dr. Mohammed Yunus. He has conceptualized microcredit intervention for its extensive use to eradicate poverty of millions of the world's poorest people. The mission of micro credit has been guided by four core themes: i/ reaching the poorest; ii/ reaching and empowering the woman; iii/ building financial self-sufficient institutions; iv/ ensuring a positive measurable impact on the lives of the clients and their families (Altar et al., 2009).

Access to financial services, especially credit is believed to have a significant impact on various aggregate and household levels outcomes, including agricultural productivity, technology adoption, food security, nutrition, health, and overall household welfare (Diagne, 1998; and Diagne & seller, 2001).

In this regards, microfinance program is generally perceived as one of the practical and attractive means for providing accessibility of the poor to credit and hence reducing poverty and achieving of sustainable livelihood (Bhuiyan et al., 2011a; 2011b).

*Household family size:* the influence of this variable can be understood in various ways. Households with many family members may encourage youths to migrate to the areas where they can work as laborers in order to generate additional income to support their families (YIRGA, 2007). On the other hand, large family size is usually associated with abundant labor endowment. According to CROPPENSTEDT *et al.*, (2003), households with large family size are more likely to adopt agricultural technology and use it efficiently at peak times. GODWIN (1998) reported that household size was positively related to the increase in household debt. Thus, the need to finance a larger amount of living expenses could be reflected in borrowing money from credit institutions.

Households headed by older individuals are more likely to have more experience in agricultural production accumulated over the years, which may account for higher levels of farm profit. However, the households headed by younger individuals are often associated with more risk-taking behavior than the elderly. Old age is the human capital that is frequently associated with non-adoption in most studies. Typically, older farmers have a tendency to stick to their old production techniques and that they are usually unwilling to accept change (SIMTOWE, and ZELLER, 2006).

Looking at the demand side of GDP of Ethiopia, one of the macroeconomic balances to be considered is the resource gap between savings and investment. In the growth and Transformation plan(GTP) period prudent macroeconomic management will be adopted to maintain this macroeconomic balance. At the end of the GTP period, total consumption is forecasted to reach 85% while domestic savings are targeted to increase from 5.5% in 2009/10 to 15% of GDP in 2014/15 and the five years average will be 11.9 % (GTP of FDRE, 2010).

It is clear that in Ethiopia economic growth is crucial for the eradication of poverty over time. For this reason, the GTP boldly aims to achieve the MDG (millennium Development Goals) target of halving extreme poverty and hunger by 2014/15, at the end of GTP period food insecurity headcount is expected to decrease from 28.2 in 2009/10(baseline year) 21.2 in 2014/15(plan target) (GTP of FDRE, 2010).

Oromia Credit and Saving Share Company (OCSSCO) is the major micro-finance institution that gives credit and saving service for the farm household in Oromia region in general and in Ziway Dugda and Munesa. Since its establishment, OCSSCO has been offering the following services: Credit Service at an affordable rate; Saving Service at an attractive rate; Micro-Insurance Service for loan clients; and Micro-Banking Service. OCSSCO provide need to be based micro financial services to strengthen the economic base of the low-income rural and urban people in Oromia through increased access to sustainable and cost efficient financial services.

## STATEMENT OF THE PROBLEM

In rural areas, farmers have no direct access to commercial banks for credit as their lending terms and conditions constrain smallholder farmer's access to credit. As a result, the government of Ethiopia has given due attention to providers of finance service in rural areas, including Micro Finance Institution(s) (MFIs), and rural saving and Credit Cooperative (SACCOs).

In Ethiopia, there is a wide gap between owned and required capital to finance the agricultural activities of smallholder farmers since the income from subsistence agriculture does not yield much surplus beyond family consumption and other social obligations. The lack of access to capital in rural areas is one of the major factors which hinders the development of agriculture (Tefera, 2004).

Currently, OCSSCO is giving micro financial service in Arsi zone to strengthen the economic base of the low-income rural and urban people. OCSSCO give need to be based micro financial services to strengthen the economic base of the poor in Zuway Dugda and Munesa districts.

To narrow the gap between owned and required capita rural farm households have been accessing credit from formal and informal financial institutions. In the Ormya region, about 45.5% of the households had borrowed money for their livelihood in the last five years, but the rest 55.5% could not. 65% of the HHs got credit from informal financial institutions in rural areas, which provided a very small loan, for short period and especially for consumption. This indicates that the majority of the rural households could not borrow from the formal credit sources due to lack of access to these sources. This big share of credit covered by the informal sources of finance also indicates that there is a huge unmet demand for credit (BRD, 2011).

The non-formal credit unlike the formal credit sources as indicated by G/Yohannes (2000) has easy access to information about their borrowers with whom they have social relations. This permits credit contracts to play a more direct role in enforcing repayment. Also, the fact that collateral is rarely used in the informal sector enables it to flexibly satisfy financial needs that cannot be met by the formal financial institutions.

In the Oromia National Regional State, Ziway Dugda and Munesa Districts in Arsi Zone labor is in short supply and is expensive especially during peak weeding and harvesting periods. Farmers mostly use hired labor. This indicates that there is a high demand for cash during the peak periods for labor. Due to the fact that the formal sector is not in a position to satisfy the credit requirements of the farmers during the periods, they depend on the informal sector for their credit needs. Most informal lenders provide cash advance before the crop is harvested, farmers are then obliged to repay the loan in cash or in kind based on a previous commitment made by the lender. Theoretical and empirical evidence in the region show that in the past year's formal credit institutions failed to reach the very poor households. On account of this background this study was undertaken, to fill the information gap on the factors affecting smallholder farmers' access to formal credit in Ziway Dugda and Munesa Districts in Arsi Zone.

This study was intended to deal with the following research question; What are the determinant factors that are affecting access to formal credit by smallholder farmers?

## OBJECTIVE OF THIS STUDY

To analyze factors that influence participation of formal microfinance institution on the Livelihoods of Farm households the case of Ziway Dugda and Munesa Districts in Arsi Zone.

## METHODOLOGY

### DESCRIPTION OF THE STUDY AREA

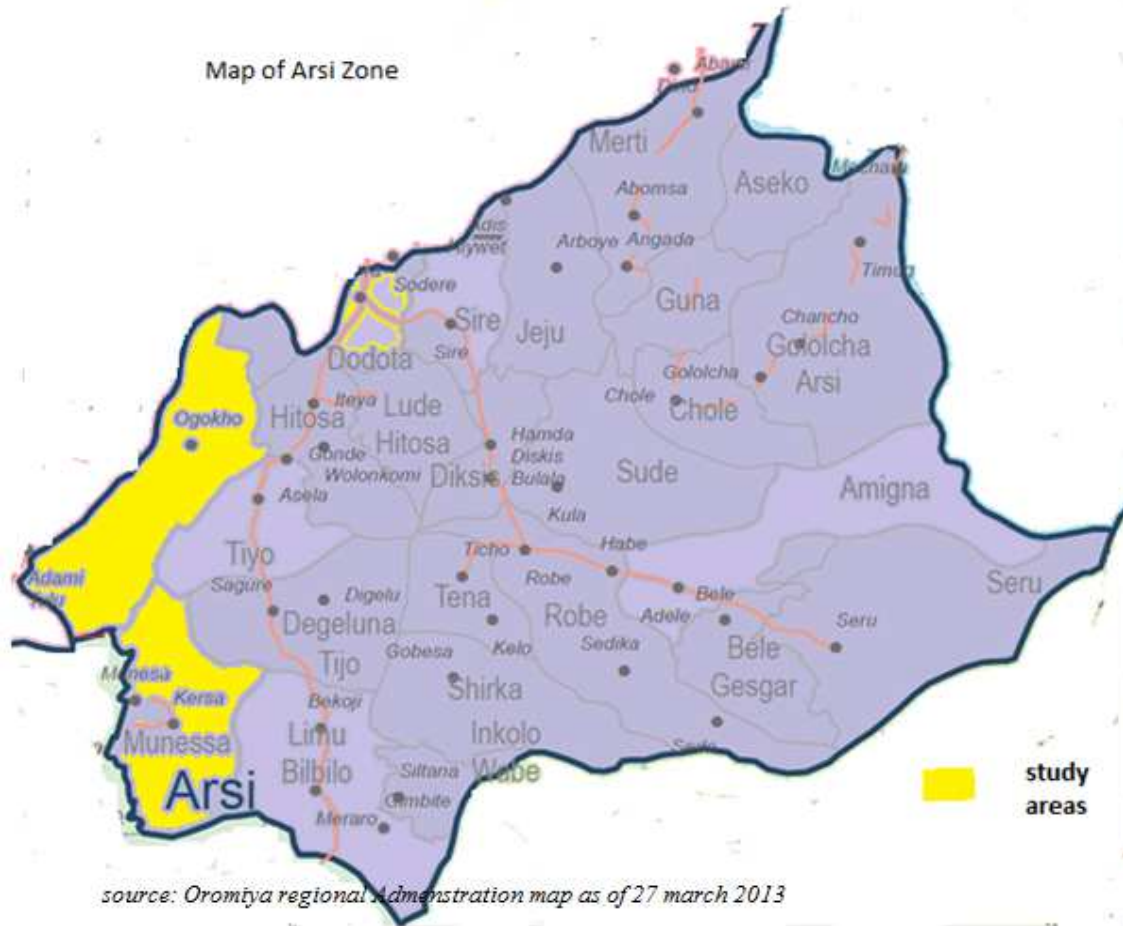
Arsi Zone is one of the 17 Zones of the Oromia National Regional State. It is located in the southeastern part of the country. It is also situated between 6045'-8058' latitude and 38032'-40050' longitude. It has a surface area of about 23,821 kilometer per squarer and divided into 25 districts and 501 kebeles. Asella is the capital town of the Zone and is located at the distance of 175 Km from Addis Ababa (AZARDO, 2013).

Arsi Zone is divided into four traditional agro-ecological zones, of which 29.10% is Kolla (refers to relatively hot climate/lowland), 27.5% is Woinadega (refers to a weather condition which is midland/temperate), 39.7% is Dega (highland) and 3.7% is classified as Wurch (refers to relatively too cold). The altitude ranges from 500 to 3300 meter above sea level (m.a.s.l). The annual rainfall ranges from 700 to 2000 mm while the annual temperature ranges from 100c-250c (AZARDO, 2013).

According to the 2007 Population and housing Census results, the population of the Zone was about 2,635,515 million. The share of the rural and urban population was 2,329,146 and 306,369 respectively. The population density of the Zone is 135 persons per kilometer per squarer.

In Arsi zone there are eight food insecure districts. Ziway Dugda is one of food insecure districts of Arsi zone. Whereas Munesa is a one of food secure district in the zone (AZARDO, 2013).

MAP 1



**SAMPLING TECHNIQUE, SOURCES, AND METHODS OF DATA COLLECTION**

The population from which the data for this study was collected farmer’s households. The average household size in Oromia regional state is 4.8 persons. The number of households in the two districts is 59876 (CSA, 2007).

Z/dugda and Munesa are selected purposely for this study. This is because: microfinance service started in the two areas in the same year.

The following factors need to be considered when the sample size is determined. The degree of precision required for the sample population and the general population; the variability of the population and the method of sampling. To determine the sample size, we use Slovin’s formula since nothing about the behavior of a population distribution is known at all.

Hence, Slovin’s formula is written as:

$$n = \frac{N}{1 + N * e^2}$$

Where,

n = Number of samples,

N = the number of households in the two districts,

e = Error tolerance.

To use the formula, we first figure out what our error of tolerance to be. For this study, we use a confidence level of 95 percent (giving a margin error of 0.05).

As result; taking cost considerations and the above factors into account, a sample of 400 farmers was interviewed using structured questionnaire. Before the actual data collection, the structured questionnaire was pretested.

The borrowers’ target population comprises the 12814 clients of OCSSCO. The population encompasses people who have been engaged in microfinance activities for at least 5 years and live in Zeway dugda and Munesa districts. We select eleven (three from Munesa and eight from Ziway Dugda) kebles that have kolla agroecology was selected purposely.

Then the people with an experience in microfinance activities and leave in the same agro-ecology and economic environment because they are informed and know much about the pros and cons of microfinance activities was randomly selected, so they can reflect better to the research.

Of the 200 households sampled 100(50 from Munesa and 50 from Ziway dugda) was borrowers. List of borrowers was obtained from OCSSCO.

The non-borrower’s population encompasses people who have not been engaged in microfinance activities, and have the desire to get credit but did not get the chance.

We purposely select ten (five from Munesa and five from ZiwayDugda) kebles (to avoid Spillover/externality effect by excluding the above purposely selected kebeles. Then 100 non-borrowers (50 households from Munesa and 50 households from Ziway dugda districts) farm households.

TABLE 1: THE FOLLOWING DISTRICTS ARE RANDOMLY SELECTED DISTRICTS FOR THIS STUDY

Districts	Borrowers from OCSSCO	Total population	Number of households
Munesa	7058	166414	34670
ZiwayDugda	5756	120987	25206
Total	12814	287401	59876

Source: CSA (2007) and OCSSCO

The information to be collected in the survey include data on household demographics, land tenure, agricultural production, livestock ownership, asset ownership, and credit and saving.

**Focus group discussions** were conducted with borrowers, non-borrowers and general managers of financial institutions at district and zone level.

**Personal observations** are also made on the houses and enterprises of the selected borrowers and non-borrowers.

TABLE 2: HOUSEHOLDS SAMPLE SIZE

Districts	Sample size	
	Borrowers	Non-borrowers
Munesa	100	
"		100
Z/Dugda	100	
"		100

#### METHODS OF DATA ANALYSIS

Both qualitative and quantitative techniques were used to analyze the data. Qualitative data that were obtained by observation, focus group discussion, and group interview was organized in the field. Quantitative data were analyzed using descriptive statistics such as percentage, tabulation, ratio and frequency distribution. In addition, a binary logit model was used to investigate determinant factors that affect smallholder farmer's participation in formal credit.

#### SPECIFICATION OF THE LOGIT MODEL

This study was intended to analyze which and how much the hypothesized regressors were related to the smallholder farmers' access to formal credit. As already noted, the dependent variable is a dummy variable, which takes a value of zero or one depending on whether or not smallholder farmers use formal credit. However, the independent variables were both continuous and discrete.

There are several methods to analyze the data involving binary outcomes. However, for this particular study, a logit model was selected over discriminant and linear probability models. If the independent variables are normally distributed the discriminant analysis estimator which follows ordinary least square procedures (OLS) is the true maximum likelihood estimator (MLE) and therefore asymptotically more efficient than the logit model which requires maximum-likelihood method. However, if the independent variables are not normal, the discriminant analysis estimator is not consistent, whereas the logit MLE is consistent and therefore more robust (Maddala, 1983; Amemiya, 1981).

The linear probability model (LPM) which is expressed as a linear function of the explanatory variables is computationally simple. However, despite its computational simplicity, as endorsed by Pindyck and Rubinfeld (1981), Amemiya (1981), and Gujarati (1988), it has a serious defect in that the estimated probability values can lie outside the normal 0-1 range. Hence logit model is advantageous over LPM in that the probabilities are bound between 0 and 1. Moreover, logit best fits the non-linear relationship between the probabilities and the explanatory variables.

In the analysis of studies involving qualitative choices, usually, a choice has to be made between logit and probit models. According to Amemiya (1981), the statistical similarities between logit and probit models make the choice between them difficult. The justification for using logit is its simplicity of calculation and that its probability lies between 0 and 1. Moreover, its probability approaches zero at a slower rate as the value of explanatory variable gets smaller and smaller, and the probability approaches 1 at a slower and slower rate as the value of the explanatory variable gets larger and larger (Gujarati, 1995).

Hosmer and Lemeshew (1989) pointed out that the logistic distribution (logit) has got an advantage over the others in the analysis of dichotomous outcome variable in that it is extremely flexible and easily used model from the mathematical point of view and results in a meaningful interpretation. Hence, the logit model is selected for this study.

In estimating the logit model, the dependent variable is credit service participation, which takes the value of 1 if a household participated in the credit service and 0 otherwise.

In order to have a clear picture of the quantitative demographic, socio-economic, institutional and communication variables which differentiate between formal credits users from the non-users. However, in the logit model analysis, we emphasize on considering the combined effect of variables between formal credit user and non-user farm households in the study area.

Therefore, the predictor variables used in this research were, age of the household head (agehh), literacy level of the household (litlh), total family size (tfsiz), fertility of soil (soilfert), marital status of the household (mrtshh), sex of household (sexhh), woreda, access to mass media (mmaccess), distance from microfinance institutions (dismicfin), income from off or nonfarm (incoffnonfrm), Remittinc and Total expenditure for agricultural input (inexpd). R Statistical software was used for the data analysis.

#### RESULTS AND DISCUSSION

The main objective of this study has been to analyze factors that influence participation of formal microfinance institution on the Livelihoods of Farm households in the case of Ziway Dugda and Munesa Districts in Arsi Zone.

The result displayed in Table 3. showed that the proportion of participants and non-participants in any credit for production and consumption purposes during the last five years was equal (50%) for both woredas. 86.75% of the total households were male out of which 50.1% participated in credit and the rest 13.25% were female from which 49.1% participated in credit for production and consumption purposes. Considering the marital status of respondents, 50.4%, 37.5% and 40.0% of married, divorced and widowed households respectively participated in credit during the last five years. The result also revealed that 55.0% and 44.9% of households owned fertile soil and no fertile soil respectively was participated in credit services. 84.25% of respondents had access to media out of which 51.6% participated in credit services and the left 17.75% of respondents had no access to media of which 41.3% took part in credit services.

TABLE 3: DISTRIBUTION OF RESPONDING HOUSEHOLDS SOCIO-ECONOMIC, SITUATIONAL AND DEMOGRAPHIC CHARACTERS

Variables	Independent	Dependent	Participation to any credit for production and consumption purposes during the last five years				Total	
			Not participated		Participate		Frequency	Percentage
			Frequency	Percentage	Frequency	Percentage		
Woreda	ziway Dugda	100	50%	100	50%	200	50%	
	Munesa	100	50%	100	50%	200	50%	
Sex of respondent	Female	27	50.9%	26	49.1%	53	13.25%	
	Male	173	49.9%	174	50.1%	347	86.75%	
Marital status respondent	Married	192	49.6%	195	50.4%	387	96.75%	
	Divorced	5	62.5%	3	37.5%	8	2%	
	Widowed	3	60.0%	2	40.0%	5	1.25%	
Fertility of soil	Fertile	109	55.1%	89	44.9%	198	49.5%	
	Not fertile	91	45%	111	55.0%	202	50.5%	
Access to mass media	Yes	37	58.7%	26	41.3%	63	15.75%	
	No	163	48.4%	174	51.6%	337	84.25%	

Source: own data

Deviance Residuals:

	Min	1Q	Median	3Q	Max
	-1.95456	-0.92264	0.00009	0.99123	2.15626
Coefficients:					
	Estimate	Std. Error	z value	Pr(> z )	
(Intercept)	9.074e-01	9.869e-01	0.919	0.35786	
agehh	-9.467e-02	1.334e-02	-7.095	1.3e-12 ***	
mrtshh	7.092e-02	2.793e-01	0.254	0.79958	
woreda	-4.544e-02	2.389e-01	-0.190	0.84913	
sexhh	2.218e-02	3.410e-01	0.065	0.94814	
litlhh	9.354e-01	3.295e-01	2.839	0.00453 **	
soilfert	4.522e-01	2.280e-01	1.984	0.04728 *	
incoffornonfrm	2.056e-04	1.458e-04	1.410	0.15847	
tfsiz	1.927e-01	9.018e-02	2.137	0.03264 *	
mmaccess	3.483e-01	3.110e-01	1.120	0.26275	
dismicfin	1.682e-02	2.816e-02	0.597	0.55028	
Remittinc	-4.833e-03	2.390e-01	-0.020	0.98387	
inpexpd	-3.464e-05	1.422e-04	-0.244	0.80753	

Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
 (Dispersion parameter for binomial family taken to be 1)  
 Null deviance: 554.52 on 399 degrees of freedom  
 Residual deviance: 463.24 on 387 degrees of freedom  
 AIC: 489.24  
 Number of Fisher Scoring iterations: 15

As it can be seen from the output of the model, age of the household head (agehh), literacy level of the household (litlhh), fertility of soil (soilfert) and total family size (tfsiz) were significantly related to participation in credit services.

**VARIABLE SELECTION**

Variable selection can be done either by computer algorithm or manually by discarding the variable with the largest p-value, greater than the specified level of significant. However, for this study, we used the backward selection computer algorithm using R version 3.0.3 (2014-03-06). Thus we found that the variables; agehh age of the household head (agehh), literacy level of the household (litlhh), fertility of soil (soilfert) and total family size (tfsiz) and Remittinc should be included in the model. The model output looks the following:

glm(formula = pomf ~ agehh + litlhh + soilfert + incoffornonfrm + tfsiz + Remittinc, family = binomial, data = Data2)

**The best model output**

Deviance Residuals:

	Min	1Q	Median	3Q	Max
	-1.93708	-0.93905	0.00007	0.99066	2.17546
Coefficients:					
	Estimate	Std. Error	z value	Pr(> z )	
(Intercept)	1.4327170	0.6627130	2.162	0.0306 *	
agehh	-0.0954321	0.0126154	-7.565	3.89e-14 ***	
litlhh	0.9257458	0.3274872	2.827	0.0047 **	
soilfert	0.4523378	0.2260510	2.001	0.0454 *	
incoffornonfrm	0.0002138	0.0001463	1.462	0.1437	
tfsiz	0.1852158	0.0881352	2.101	0.0356 *	
Remittinc	-0.0048638	0.2369016	-0.021	0.9836	

Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
 (Dispersion parameter for binomial family taken to be 1)  
 Null deviance: 554.52 on 399 degrees of freedom  
 Residual deviance: 464.94 on 393 degrees of freedom  
 AIC: 478.94  
 Number of Fisher Scoring iterations: 15

**Odds ratio**

Agehh, litlhh, soilfert tfsiz incoffornonfrm Remittinc  
 .9089 2.523 1.57 1.203 1.000 0.995

As can be understood from the above output age of the household head (agehh), literacy level of the household (litlhh), fertility of soil (soilfert) and total family size (tfsiz) were found to have a significant effect on the participation in credit services at the 5% level of significance since their p-value is less than  $\alpha=0.05$ .

## DISCUSSION

The age of household head had a significant negative relationship with participation implying that as household head got old they rarely participate in MFI. This variable is significant at 5% probability level and negatively associated with participation in MFI this indicates that the odds ratio in favor of the probability of being participation decrease with an increasing age by 0.9089 for age implies that other things being constant. Conversely speaking, households headed by younger heads had better participation in MFI in the rural areas than households headed by a head who is older. However, the households headed by younger individuals are often associated with more risk-taking behavior than the elderly. Old age is the human capital that is frequently associated with non-adoption in most studies. Typically, older farmers have a tendency to stick to their old production techniques and that they are usually unwilling to accept change (Simtowe and Zeller, 2006).

Education had a positively and significantly influenced on participation in microfinance; and the model result indicated that those rural farm households head, who were literate have a higher probability of being more accessible and utilization of formal credit and saving institution than those who were illiterate. Keeping other factors constant, the probabilities of participation in MFI by the literate household heads were found to be in high participation by 2.524 times that of illiterate farm households head. A Higher level of education is believed to be associated with access to sources of information on agricultural technology (Norris and Batie, 1987). Some studies indicated that a high level of education contributes significantly to the level of agricultural profitability of the households (Oyedele *et al.*, 2009; FOLTZ, 2003). Therefore, households with higher education levels are able to get credit from formal institutions and more likely to manage their businesses successfully.

Family size appeared to be highly significant in determining household's participation microfinance institution in the study area. This variable is significant at 5% probability level and negatively associated with participation in MFI. The negative/ positive relationship indicates that the odds ratio in favor of the probability of being participation increase/decrease with an increase family size. The odd ratio of 0.24 for family size implies that other things being constant, the odds ratio in the favor of being participation increase or decrease by factors of 0.24 a family size increase by one person. The possible explanation can be those households with many children could face food insecurity because of high dependence burden. This show that those farmers with a large economically nonactive member in the family tend to be food insecure than those with small family size. This agrees with the finding of GODWIN (1998) reported that household size was positively related to the increase in household debt. Thus, the need to finance a larger amount of living expenses could be reflected in borrowing money from credit institutions

Fertility status of the soil (soilf) has a negative relationship with the dependent variable showed that households having more fertile soil do not need credit. The odds in fevers of access of credit use decrease by a factor of 0.066 for the farmers who owned more fertilized soil compared to the farmers who owned poor soil. The inverse relationship between land fertility and fertilizer credit use is that land with higher soil fertility states requires little or no application of fertilization (which is acquired through credit) and vice versa. This result is very much comparable with Birhanu (1993) which revealed that land fertility was significantly negatively related to fertilizer consumption.

## CONCLUSION AND RECOMMENDATION

This part concludes the main findings obtained based on the research questions of the study.

The main objective of this study was to investigate the factors that influence participation of formal microfinance institution on the Livelihoods of Farm households. Thus the following conclusions are made.

The finding revealed that 86.75% of the total households were male out of which 50.1% participated in credit and the left 13.25% were female from which 49.1% participated in any credit for production and consumption purposes. The logistic regression analysis results showed that among twelve explanatory variables, which were included in the model, only four variables were statistically significant since their p-value is less than  $\alpha=0.05$  while the remaining nine variables were less powerful in explaining the variation.

In this respect, the result showed that the most important influential factors for the participation of microfinance institution were the age of household head, literacy level of the household, soil fertility and Family size looking at the final logit model.

Family size (tfsiz) is found to have influential factors on the participation of microfinance institution. Due to less economic opportunities available in rural areas, people of rural areas do not have appropriate jobs. So, most of them are jobless in rural areas. Large family size is a burden on household heads, so rural farmers increase participation due to large family size. The results show that due to an increase of one family member in household participation is increase by 1.203 on average. Our results are consistent with the study of Bendig *et al.* (2009).

Educating the household was found to have a positive and significant relationship with participating of the microfinance institution. implying the importance of participating formal microfinance institution. The level of formal education in the household was very important variables affecting participating of the microfinance institution. this underscores the importance of human capital development in increasing the probability and intensity of participation formal microfinance institution. Promoting farmers household to participate in education through formal and non-formal programs is one of the vital issues to enable farmers to have more benefit from the MFI equally. Major stakeholders of the rural areas, mainly Ministries of Education, MFI, Agriculture and other pertinent organizations may have to consider in working together, in order to create a conducive learning environment for the community.

Dynamic incentives offered by the microfinance institutions to older household had a positive significant relationship with the loan.

Building perception and awareness related to soil rehabilitation program among the local community is important in the study area. It is important to communicate to the farmers about the long term effect of fertilizer application of agriculture fields. Decrees soil fertility farmers need to be fertilizer to get production. Policy makers need to address alternative soil rehabilitation activities for their food security in the study area. Farmers need much more credit to parches fertilizer policy makers should also highlight the need to create a balance between soil protection and access to MFI.

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